

AMENDMENTS TO THE CLAIMS:

Please amend the claims to read as follows:

1 Claim 1 (currently amended): A switching fabric to transmit ~~for transmitting~~ received data
2 frames to destinations, each received data frame to specify ~~specifying~~ a destination, the
3 switching fabric comprising:

4 a plurality of input ports, each input port to include a data frame queue associated with
5 the specified destination in each received data frame, each input port to partition ~~for partitioning~~
6 each received data frame ~~frames~~ into data cells, the input port to queue the data cells in the data
7 frame queue associated with the specified destination; and

8 a plurality of crossbar sections, each crossbar section ~~being~~ coupled to each input port ~~for~~
9 to receive ~~receiving~~ the data cells at cell transfer intervals on a data link coupled between each
10 input port and each crossbar section, each crossbar section to include a destination queue
11 associated with the specified destination in each received data frame; and

12 a plurality of output ports, each output port to receive data cells from the crossbar section
13 on a data link between each crossbar section and each output port;

14 wherein each input port includes logic to schedule ~~for scheduling~~ the transmission of
15 each data cell of a received data frame to any output port associated with the specified
16 destination, the schedule based upon an ability of a crossbar section indicating an ability to
17 receive a data cell at a destination queue associated with the specified destination at a subsequent
18 cell transfer interval.

Application No. 09/539,795
Atty. Docket No. P7779

-2-

Examiner Blallam
Art Unit 2662

1 Claim 2 (canceled).

1 Claim 3 (currently amended): The switching fabric of claim 1 2, wherein each ~~said~~ received data
2 frame includes a data payload and ~~each input port provides for each said data frame~~ one or more
3 ~~associated~~ data cells partitioned from each received data frame to include ~~including~~ a portion of
4 the data payload, the one or more ~~associated~~ data cells collectively to include ~~having~~ the data
5 payload of each respective received data frame, frame, ~~wherein the scheduling logic at each input~~
6 ~~port schedules a transmission of each data cell to one of the crossbar sections on the data link~~
7 ~~coupled between each input port and each crossbar section.~~

1 Claims 4-6 (canceled).

1 Claim 7 (currently amended): The switching fabric of claim 6 1, wherein the destination queue
2 associated with the specified destination in each received data frame comprises each data cell
3 ~~queues of the crossbar section is capable of enqueueing~~ a finite number of locations, each location
4 to receive a single data cell from an input port, data cells at any one time, and wherein the ability
5 of the crossbar section to receive the data cell ~~cells~~ at the destination queue associated with ~~for~~
6 the specified destination ~~of data frames with a destination associated with the output port is~~
7 based upon a quantity of locations available in the destination queue associated with the
8 specified destination at the subsequent cell transfer interval, ~~each data cell queues, each location~~
9 ~~capable of receiving a single data cell from an input port.~~

1 Claim 8 (canceled):

1 Claim 9 (currently amended): The switching fabric of claim 1 &, wherein the destination
2 specified in a received data frame comprises each said output port is coupled to one or more
3 media access control (MAC) devices coupled to each output port through a common
4 transmission medium, and wherein for each MAC device coupled to said each output port, said
5 each output port maintains includes one or more an associated MAC queues queue associated
6 with the one or more MAC devices, the one or more MAC queues to receive of reassembled data
7 frames that specify the one or more MAC devices as the destination. for transmission to said
8 MAC device, the destination of each reassembled data frame in the associated MAC queue being
9 associated with the MAC device,

1 Claim 10 (currently amended): The switching fabric of claim 9, wherein each ~~said~~ output port is
2 to transmit transmits a signal to each crossbar section to indicate indicating an ability to receive
3 data cells ~~from on the data link links coupling between said each output port to and each~~ crossbar
4 section.

1 Claim 11 (currently amended): The switching fabric of claim 1, wherein ~~the switching fabric~~
2 ~~includes a plurality of output ports and for each output port,~~ each crossbar section is to transmit
3 ~~transmits~~ a signal to each input port to indicate indicating the ability ~~of each crossbar sections~~ to
4 receive the data cell cells at the destination queue associated with the specified destination at the
5 subsequent cell transfer interval. of the data frames specifying a destination associated with the
6 output port.

1 Claim 12 (currently amended): A method of transmitting digital data from a plurality of sources
2 to a plurality of destinations, the method comprising:

3 receiving a data frame specifying a destination ~~frames~~ at ~~each~~ an input port from among
4 of a plurality of input ports, the input port to include a data frame queue associated with the
5 specified destination;

6 partitioning portions of the received data frame ~~frames~~ to provide data cells;

7 queuing the data cells in the data frame queue;

8 ~~receiving the data cells at each of a plurality of crossbar sections at cell transfer intervals~~
9 ~~on a data link coupled between each crossbar section and each input port; and~~

10 ~~transmitting data cells from each crossbar section to any one of a plurality of output~~

11 ~~ports; and~~

12 ~~scheduling~~ scheduling, at each the input port port, the a transmission of each data cell of a
13 the received data frame received at an input port during a cell transfer interval for each data link
14 coupled to the input port and each crossbar section based upon an ability of a crossbar section to
15 receive the data cells destined for a given output port to any one of a plurality of crossbar
16 sections, each crossbar section including a destination queue associated with the specified
17 destination, wherein the transmission is to occur during a cell transfer interval over one or more
18 data links between the input port and each crossbar section, the scheduling based on each
19 crossbar section indicating an ability to receive each data cell at the destination queue associated
20 with the specified destination at the cell transfer interval;

21 transmitting each data cell to the crossbar section based on the schedule;

22 receiving each data cell at the destination queue included in the crossbar section, wherein
23 the crossbar section is to transmit each data cell over a data link to an output port from among a
24 plurality of output ports.

1 Claim 13 (canceled).

1 Claim 14 (currently amended): The method of claim 12 ~~13~~, wherein ~~each~~ the data frame
2 includes a data payload, and the method further comprising: enqueueing providing for each the data
3 frame in a data frame queue at an input port one or more associated each data cell cells of the
4 received data frame to include ~~including~~ a portion of the data payload of ~~each said~~ the received
5 data frame, the ~~one or more associated~~ data cells collectively to include ~~having~~ the data payload
6 of ~~each said~~ the received data frame. ~~frame; and~~
7 ~~scheduling a transmission of the one or more associated data cells to the crossbar section~~
8 ~~on the data link.~~

1 Claim 15 (currently amended): The method of claim 14, the method further comprising
2 scheduling a the transmission of each data cell of the received data frame ~~the one or more~~
3 ~~associated data cells the crossbar section on the data link coupled between the input port and the~~
4 ~~crossbar section~~ prior to scheduling a transmission of a data cell of another subsequent received
5 data frame specifying a same destination. ~~a subsequent data frame in the data frame queue to any~~
6 ~~of the crossbar sections.~~

1 Claim 16 (currently amended): The method of claim 15, the method further comprising, ~~for each~~
2 ~~the~~ data links ~~link~~ coupled between ~~each~~ the input port and each crossbar section[[,]] attempting
3 to schedule a transmission of a data cell of a partially transmitted data frame, the partially
4 transmitted data frame having at least one associated data cell previously scheduled for
5 transmission to a crossbar section prior to scheduling a another transmission of a data cell of a
6 data frame for which no data cells have been previously scheduled for transmission to the
7 crossbar section.

Claim 17 (canceled).

1 Claim 18 (currently amended): The method of claim ~~17~~ 12, wherein ~~each data cell~~ the
2 destination queue ~~of a crossbar section~~ is capable of queuing ~~enqueueing~~ a finite number of data
3 cells at any one time, the method further including determining the ability of the destination
4 queue ~~crossbar section~~ to receive the each data cell cells of the received data frame ~~frames with a~~
5 ~~destination associated with the output port~~ based upon a quantity of locations available in the
6 destination queue at the cell transfer interval, ~~each data cell queue~~, each location capable of
7 receiving a single data cell. ~~from an input port.~~

1 Claim 19 (canceled).

1 Claim 20 (currently amended): The method of claim ~~19~~ 12, the method further comprising, at
2 the output port, maintaining a media access control (MAC) queue of reassembled data frames to
3 be transmitted to one or more MAC devices through a common transmission medium, the

4 destination of each reassembled data frame in the MAC queue being associated with the one or
5 more MAC devices.

1 Claim 21 (currently amended): The method of claim 17 ~~12~~, the method further comprising the
2 output port associated with the specified destination transmitting a signal ~~from each output port~~
3 ~~to each~~ the crossbar section indicating an ability to receive each data cell ~~eells from over the data~~
4 ~~link links coupling each between the output port to and each the crossbar section at a subsequent~~
5 cell transfer interval and the crossbar section transmitting each data cell to the output port based
6 on the signal.

1 Claim 22 (currently amended): The method of claim 12, the method further comprising
2 transmitting a signal from ~~each the crossbar section~~ to ~~each the input port to indicate~~ indicating
3 the ability of each crossbar section to receive the a data cell ~~eells at the destination queue at a~~
4 subsequent cell transfer interval. ~~of the received data frames specifying a destination associated~~
5 ~~with the output port.~~

1 Claim 23 (currently amended): A switch fabric in a data communication network including a
2 plurality of host computers for transmitting data packets to a plurality of destinations, each
3 destination being associated with a media access control (MAC) device having a MAC address,
4 the switching fabric comprising:
5 a plurality of output ports, each output port to couple ~~being coupled~~ to at least an
6 associated one of the MAC devices to transmit ~~for transmitting~~ MAC data frames to the MAC
7 device according to the MAC address associated therewith;

Application No. 09/539,795
Atty. Docket No. P7779

-8-

Examiner Elallam
Art Unit 2662

8 a look-up engine ~~to receive for receiving~~ the data packets from the host computers and to
9 ~~form forming~~ intermediate data frames based upon the data packets, the intermediate data frames
10 ~~having to have~~ information to identify identifying an output port associated with one of the
11 destinations of the MAC device in a header and a data payload;

12 a plurality of input ports ~~for receiving to receive~~ the intermediate data frames from the
13 lookup engine, each input port to include a data frame queue associated with the identified output
14 port, each input port to partition partitioning the data payload of at least some of the received
15 intermediate data frames ~~received at the input port~~ to provide a plurality of data cells; and

16 a plurality of crossbar sections, each crossbar section ~~being coupled to each input port to~~
17 ~~receive for receiving~~ the data cells at cell transfer intervals on a data link coupled between each
18 input port and each crossbar section, each crossbar section ~~being coupled~~ to transmit the data
19 cells to any one of the plurality of output ports, each crossbar section to include a destination
20 queue associated with each of the plurality of output ports,

21 wherein each input port includes logic to schedule for scheduling the transmission of
22 each data cell of a received intermediate data frame to any ~~output port~~ crossbar section, based
23 upon ~~an ability of~~ a crossbar section indicating an ability to receive a data cell at a destination
24 queue at a subsequent cell transfer interval, ~~to receive the data cells destined for a given output~~
25 ~~port.~~

1 Claim 24 (canceled).

1 Claim 25 (currently amended): The switch fabric of claim 23 24, wherein each received
2 intermediate data frame includes a data payload and ~~each input port provides for each data frame~~

3 one or more ~~associated~~ partitioned data cells from each received intermediate data frame to
4 include ~~including~~ a portion of the data payload, the one or more associated data cells collectively
5 having the data payload of each respective received intermediate ~~the data frame, frame, wherein~~
6 ~~the scheduling logic at each input port schedules a transmission of the one or more associated~~
7 ~~data cells to the crossbar section on the data link coupled between each input port and each~~
8 ~~crossbar section.~~

1 Claim 26 (currently amended): The switch fabric of claim 25, wherein each input port is to
2 schedule ~~schedules a the~~ transmission of the one or more associated data cells to the crossbar
3 section on the data link coupled between each input port and the crossbar section prior to
4 scheduling a transmission of a data cell of a ~~subsequent~~ another received intermediate data
5 frame, the other received intermediate data frame received subsequently and queued in the same
6 data frame queue associated with the same output port. ~~in the data frame queue to any of the~~
7 ~~crossbar sections.~~

1 Claim 27 (currently amended): The switch fabric of claim 25, wherein for each data link
2 coupled between each input port and each crossbar section, each input port is to attempt ~~attempts~~
3 to schedule a data cell of a partially transmitted data frame, the partially transmitted data frame
4 having at least one associated data cell previously scheduled for transmission to a crossbar
5 section, prior to scheduling a transmission of a data cell of a data frame for which no data cells
6 have been previously scheduled for transmission to the crossbar section.

1 Claim 28 (canceled).

1 Claim 29 (currently amended): The switch fabric of claim ~~28~~ 23, wherein the destination queue
2 ~~each data cell queue of each crossbar section~~ is capable of queuing a finite number of data cells
3 at any one time, and wherein the ability of each crossbar section to receive the data cells of the
4 received intermediate data frames with a destination associated with the output port is based
5 upon a quantity of locations available in the destination queue at the subsequent cell transfer
6 interval, ~~each data cell queue~~, each location capable of receiving a single data cell from an input
7 port.

1 Claim 30 (currently amended): The switch fabric of claim 23, wherein each output port includes
2 logic to reassemble ~~for reassembling~~ the received intermediate data frames specifying a
3 destination associated with each output port from data cells received from each crossbar section
4 coupled to each output port.

1 Claim 31 (currently amended): The switch fabric of claim 30, wherein each output port is
2 coupled to each MAC device associated with each output port through a common transmission
3 medium and wherein each output port is to maintain ~~maintains~~ a MAC queue of reassembled
4 data frames for transmission to the associated MAC devices, the destination of each reassembled
5 data frame in the MAC queue being associated with the MAC device.

1 Claim 32 (currently amended): The switch fabric of claim 31, wherein each output port is to
2 transmit ~~transmits~~ a signal to each crossbar section indicating an ability to receive data cells from
3 data links coupling each output port to each crossbar section.

1 Claim 33 (currently amended): The switch fabric of claim 23, wherein ~~for each output port, each~~
2 crossbar section is to transmit ~~transmits~~ a signal to each input port to indicate ~~indicating~~ the
3 ability ~~of each crossbar section~~ to receive ~~the~~ a data cell ~~cells~~ at a destination queue at a
4 subsequent cell transfer interval ~~of the data frames specifying a destination associated with an~~
5 ~~output port.~~